

TROPICAL STORM HERMINE

2 September 2016

OPEN-FILE REPORT

South Carolina Department of Natural Resources
Land, Water and Conservation Division
South Carolina State Climatology Office

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March 31, 2017

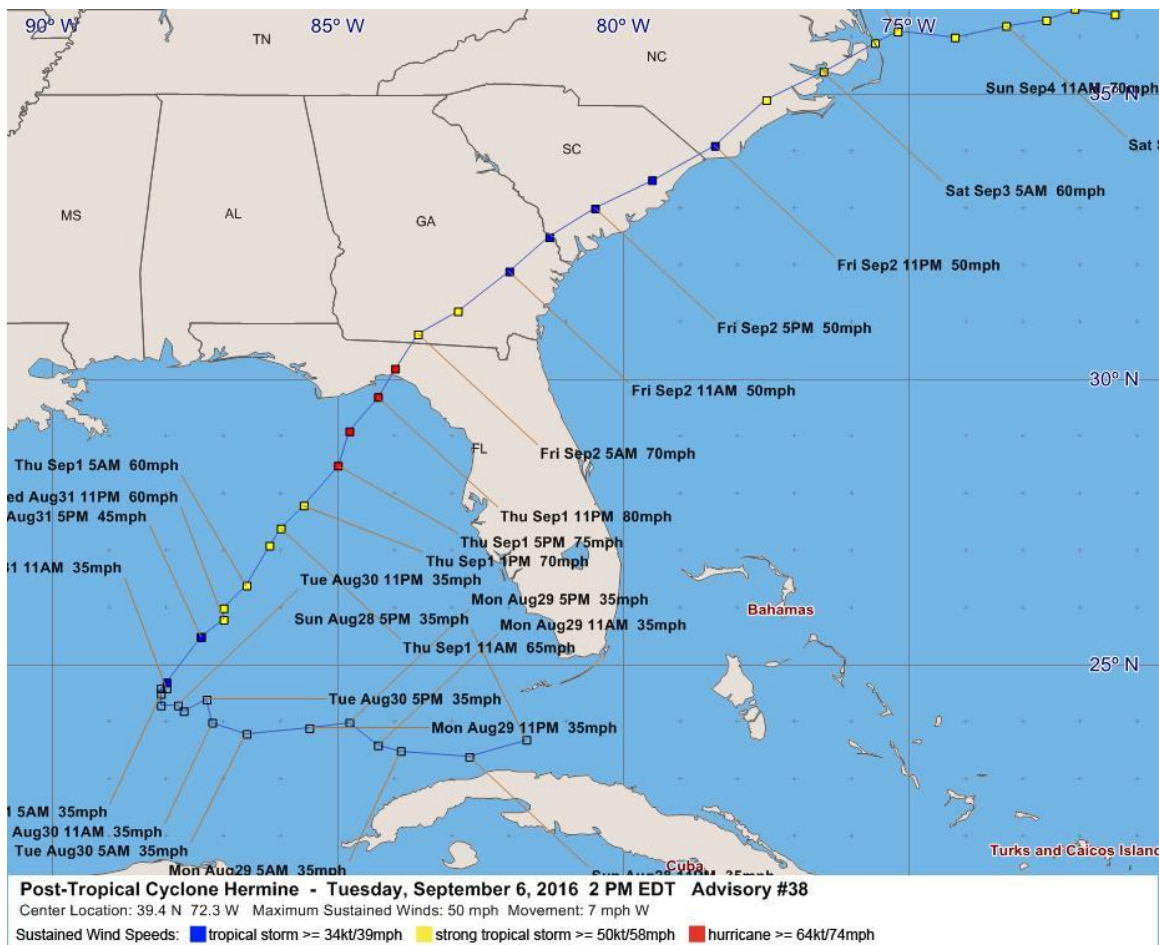


Figure 1. Track and intensity history of Hurricane Hermine

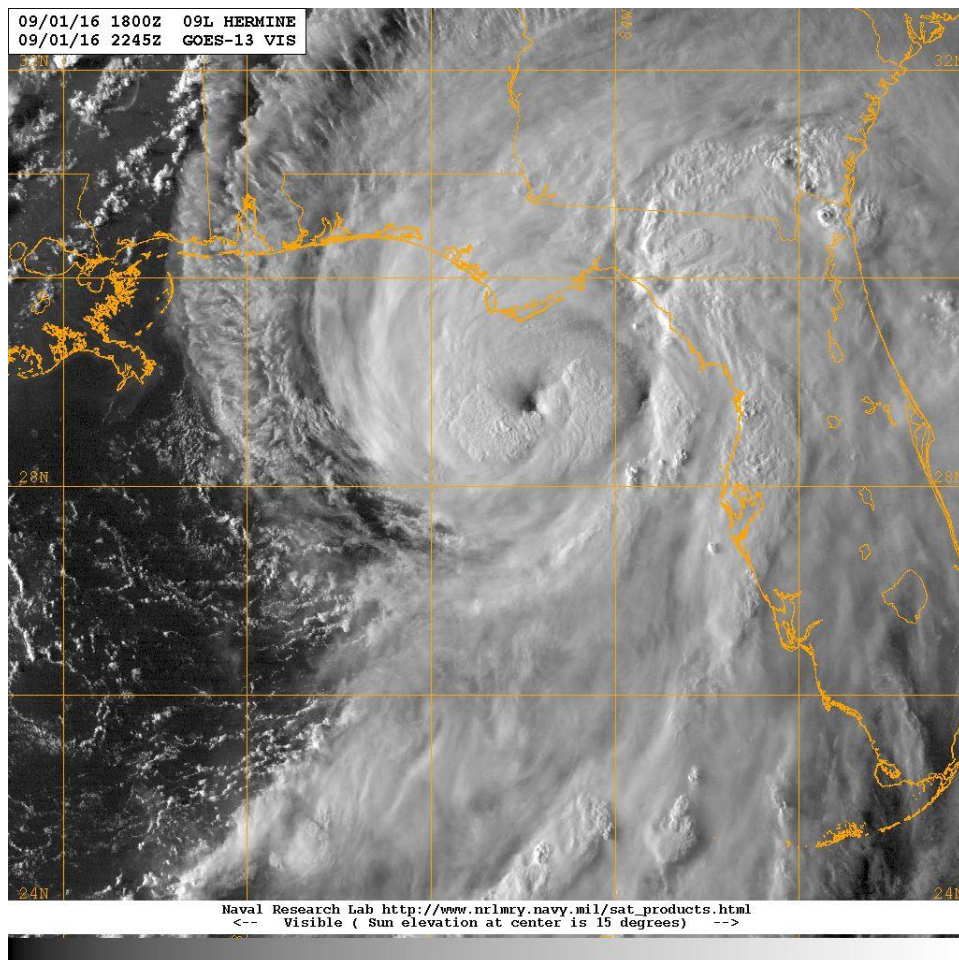


Figure 2. Hurricane Hermine at Florida landfall 6:45 PM, 1 September. (Naval Research Laboratory, Monterey)

Event Summary:

Hurricane Hermine began as a tropical easterly wave that rolled off the western coast of Africa on 17 August 2016. Deep layer shear prevented tropical cyclone formation until 28 August when the disturbance developed a center of circulation and organized convection that the National Hurricane Center classified as Tropical Depression 9. TD 9 formed in the Florida Straits, 50 miles south of Key West under the southern flank of high pressure ridge centered over the southeast US. This high pressure steered TD 9 westward over the eastern Gulf of Mexico for 48 hours before reaching a weakness in the ridge that allowed TD 9 to turn to the northeast (Fig 1).

Weakening upper level shear and 86° Gulf water allowed TD 9 to intensify to tropical Storm strength on 31 August. Intensification continued with the cyclone reaching a peak intensity of 80 mph 1 September. Hurricane Hermine made landfall east of St. Marks Florida during the morning of 2 September (Fig. 2) weakening quickly to Tropical Storm strength over the Florida Panhandle. Hurricane Hermine's Florida landfall was first since Hurricane Wilma's 2005 landfall.

Tropical Storm Hermine tracked over Georgia, South Carolina and North Carolina on 2 September with 40-60 mph winds and heavy rain (Fig. 6, Tables 1-3). Hermine's center of circulation entered South Carolina at approximately 2 PM 2 September crossing over

the Low Country on a steady northeast track steered by the subtropical ridge to the east and a sharp 500 mb trough aloft (Figs. 4 and 5). Figure 6 shows Hermine's sustained winds, wind gusts and sea level pressure as the storm passed near the Charleston Air Force Base.

Hermine downed numerous trees across the Low Country, Midlands and Pee Dee, knocking out power, blocking roads, and damaging homes. Downed trees significantly damage 13 homes in Hilton head, where damage was estimated at approximately \$250,000. Flash flooding was reported in the counties of Aiken, Chesterfield, Clarendon, Georgetown, Lexington, Orangeburg, Richland, and Sumter. No tornadoes were reported in South Carolina, although two EF-1 tornadoes were reported in both Georgia and North Carolina. Figure 7 and Tables 1-3 show selected observations made during Tropical Storm Hermine's South Carolina passage.

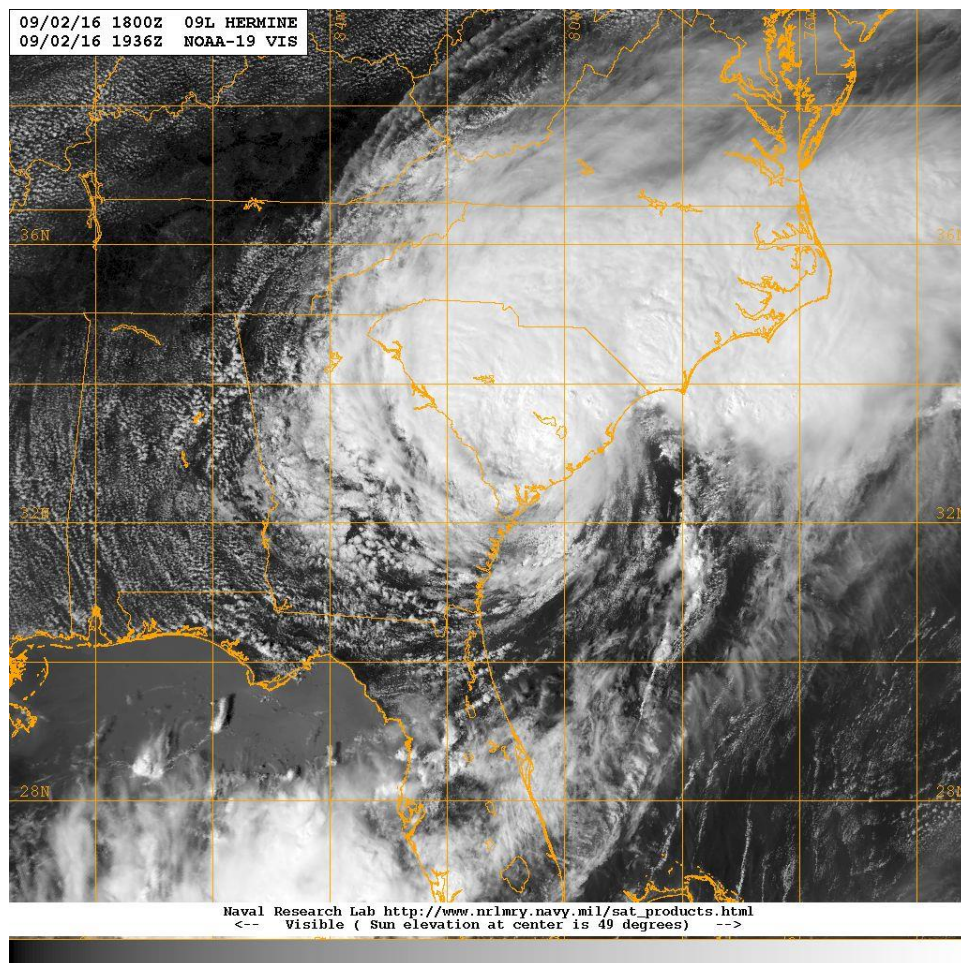


Figure 3. Tropical Storm Hermine, 3:36 PM, September 2, 2016 (Naval Research Laboratory-Monterey)

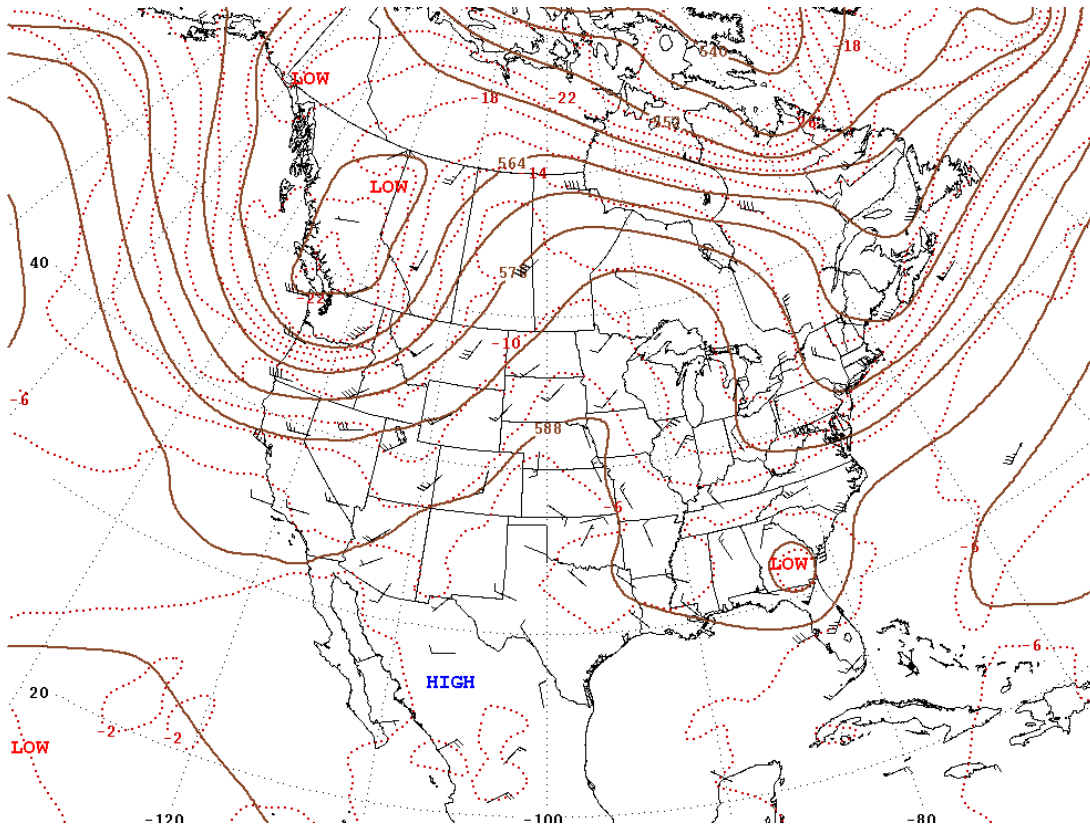


Figure 4. 500 mb winds and analysis, 0800 EDT 2 September. (NOAA)

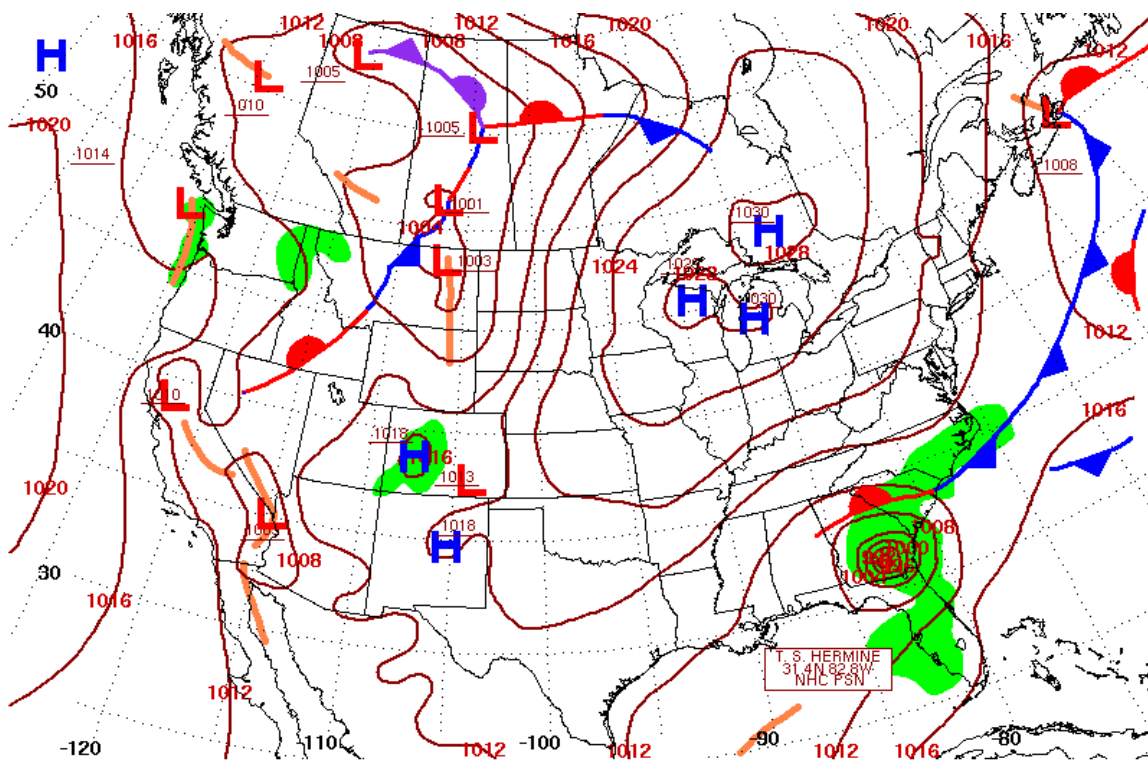


Figure 5. Surface analysis, 0800 EDT 2 September. (NOAA)

South Carolina Effects:

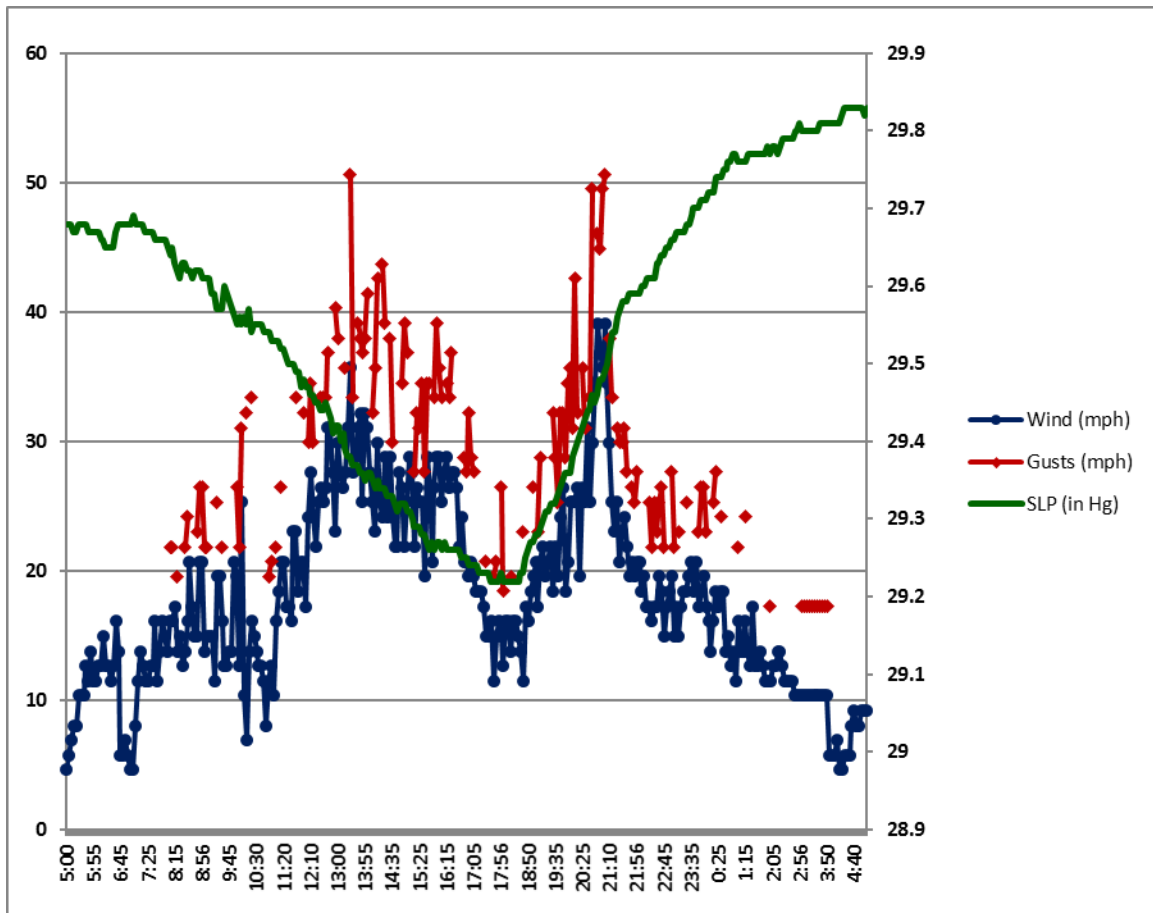


Figure 6. Charleston Air Force Base (KCHS) recorded observations of sustained winds, gusts, and sea level pressure beginning 5 AM, 2 September.

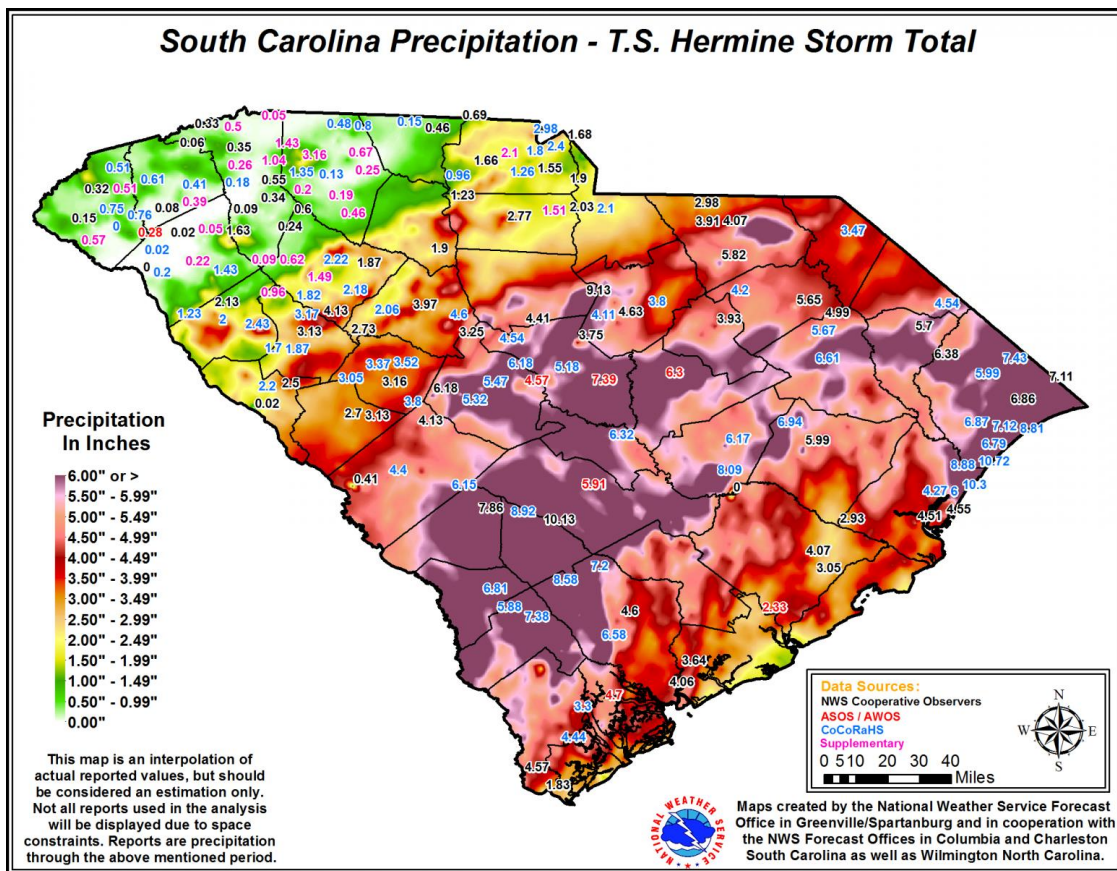


Figure 7. State-wide final rainfall totals. (NOAA-NWS)

Table 1: Rainfall totals (inches):

Murrells Inlet 1 NNE	10.7	Pawley's Island	5.6
Padgetts 6NNW	10.5	Aiken 3S	5.2
Myrtle Beach 9 WSW	10.0	USC	5.1
Surfside Beach 1 NE	9.0	Columbia Metro	4.6
Denmark 2WNW	8.9	Camden 1 N	4.5
Norway 5E	8.7	Cedar Creek	4.4
Pawley's Island 6 NNE	8.4	Beaufort MCAS	3.9
Conway 4 NE	7.6	Wando 1 SSW	3.5
South Fork Edisto River	7.6	Saluda	3.4
McEntire ANGB	7.4	Cheraw 1W	3.3
Little River	7.3	ACE Basin	3.2
1 E Lexington	7.2	Pageland 3SE	3.0
Waccamaw River	6.9	Daufuskie 2 SW	2.3
Orangeburg	6.5	Lancaster 1NNW	1.6
Gallivants Ferry	6.4	HiltonHead 1S	1.1
Shaw AFB	6.3	Indian Land 4.7 S	1.1
Holly Hill	6.0	Charleston AFB	1.1
Orangeburg Municipal	5.9	Walterboro	1.1
Fort Jackson 8E	5.7	Mount Pleasant 2S	1.0

Table 2: Shore Station Sustained Winds, Gusts (mph)

Georgetown Winyah Bay	61	67	Charleston Executive	39	48
Sullivans island	55	63	Beaufort County	35	48
Murrells Inlet	49	56	Hilton Head	33	55
Folly Beach Pier	49	60	Mount Pleasant	31	48
Charleston FT Sumter	48	62	Marion County	30	51
Saint Helena	47	56	Florence Regional	30	48
Folly Island	46	59	Hartsville	29	49
Isle of Palms Pier	46	59	Beaufort MCAS	29	45
Springmaid Pier	45	59	Conway	29	44
North Myrtle Beach	44	55	Myrtle Beach	28	39
Fripp Nearshore	41	64	Allendale County	23	39
Capers Nearshore	40	58	Georgetown	20	43
Charleston AFB	39	53			

Table 3: Offshore Sustained Wind/Gust (mph)/ Wave Height (ft):

Edisto Buoy	47.4/59.3/19.3
Frying Pan Shoals	42.9/55.3/18.0
Grays Reef Buoy	44.3/55.7/11.6

ACKNOWLEDGEMENTS:

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- NOAA National Data Buoy Center
- NOAA Weather Prediction Center
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- National Weather Service Office, Charleston, South Carolina
- National Weather Service Office, Wilmington, North Carolina
- The Naval Research Laboratory-Monterey